

WHAT IS CLAIMED IS:

1 1. A system for managing circuit emulation service over an
2 Asynchronous Transfer Mode (ATM) network, comprising:
3 control logic configured to receive channelized circuit data, the channelized
4 circuit data being transmitted at an arbitrary rate;

5 control logic configured to format the channelized circuit data into one or
6 more ATM cells, each ATM cell having a payload, the payload having a plurality of octets
7 and corresponding validity fields, each validity field indicating whether the associated octet
8 contains valid data; and

9 control logic configured to transmit the one or more ATM cells across the
10 ATM network;

11 wherein the transmission of the one or more ATM cells effectively results in
12 transmission of the channelized circuit data at the arbitrary rate over the ATM network; and
13 wherein the arbitrary rate is not a multiple of a fundamental rate.

1 2. The system of claim 1 wherein the arbitrary rate is less than the
2 fundamental rate.

1 3. The system of claim 1 wherein the arbitrary rate is higher than the
2 fundamental rate.

1 4. Traffic aggregation equipment incorporating the system as recited in
2 claim 1.

1 5. A system for managing circuit emulation service over an
2 Asynchronous Transfer Mode (ATM) network, comprising:
3 a first ATM processor configured to:
4 receive channelized circuit data, the channelized circuit data being
5 transmitted at an arbitrary rate;
6 format the channelized circuit data into one or more ATM cells, each
7 ATM cell having a payload, the payload having a plurality of octets and corresponding
8 validity fields, each validity field indicating whether the associated octet contains valid data;
9 and
10 transmit the one or more ATM cells across the ATM network; and

11 a second ATM processor configured to receive and process the one or more
12 ATM cells transmitted from the first ATM processor;

13 wherein the transmission of the one or more ATM cells effectively results in
14 transmission of the channelized circuit data at the arbitrary rate over the ATM network; and
15 wherein the arbitrary rate is not a multiple of a fundamental rate.

1 6. The system of claim 5 wherein the second ATM processor processes
2 each ATM cell based on the validity fields and the associated octets contained therein;
3 wherein if a validity field indicates a "valid" status, the associated octet is
4 considered to be containing valid data and will be processed, and if the validity field indicates
5 an "invalid" status, the associated octet is considered to be containing invalid data and will
6 not be processed; and

7 wherein by processing the one or more ATM cells based on the validity fields
8 contained therein, the transmission of the one or more ATM cells effectively results in
9 transmission of the channelized circuit data at the arbitrary rate over the ATM network.

1 7. The system of claim 5 wherein the arbitrary rate is less than the
2 fundamental rate.

1 8. The system of claim 5 wherein the arbitrary rate is higher than the
2 fundamental rate.

1 9. A method for managing circuit emulation service over an
2 Asynchronous Transfer Mode (ATM) network, the method comprising:
3 receiving channelized circuit data, the channelized circuit data being
4 transmitted at an arbitrary rate;
5 formatting the channelized circuit data into one or more ATM cells, each
6 ATM cell having a payload, the payload having a plurality of octets and corresponding
7 validity fields, each validity field indicating whether the associated octet contains valid data;
8 and

9 transmitting the one or more ATM cells across the ATM network;
10 wherein the transmission of the one or more ATM cells effectively results in
11 transmission of the channelized circuit data at the arbitrary rate over the ATM network; and
12 wherein the arbitrary rate is not a multiple of a fundamental rate.

1 10. The method of claim 9 wherein the arbitrary rate is less than the
2 fundamental rate.

1 11. The method of claim 9 wherein the arbitrary rate is higher than the
2 fundamental rate.

1 12. A method for managing circuit emulation service over an
2 Asynchronous Transfer Mode (ATM) network, the method comprising:
3 directing a first ATM processor to:
4 receive channelized circuit data, the channelized circuit data being
5 transmitted at an arbitrary rate;
6 format the channelized circuit data into one or more ATM cells, each
7 ATM cell having a payload, the payload having a plurality of octets and corresponding
8 validity fields, each validity field indicating whether the associated octet contains valid data;
9 and
10 transmit the one or more ATM cells across the ATM network; and
11 directing a second ATM processor to receive and process the one or more
12 ATM cells transmitted from the first ATM processor;
13 wherein the transmission of the one or more ATM cells effectively results in
14 transmission of the channelized circuit data at the arbitrary rate over the ATM network; and
15 wherein the arbitrary rate is not a multiple of a fundamental rate.

1 13. The method of claim 12 further comprising:
2 directing the second ATM processor to process each ATM cell based on the
3 validity fields and the associated octets contained therein;
4 wherein if a validity field indicates a "valid" status, the associated octet is
5 considered to be containing valid data and will be processed, and if the validity field indicates
6 an "invalid" status, the associated octet is considered to be containing invalid data and will
7 not be processed; and
8 wherein by processing the one or more ATM cells based on the validity fields
9 contained therein, the transmission of the one or more ATM cells effectively results in
10 transmission of the channelized circuit data at the arbitrary rate over the ATM network.

1 14. The method of claim 12 wherein the arbitrary rate is less than the
2 fundamental rate.

1 15. The method of claim 12 wherein the arbitrary rate is higher than the
2 fundamental rate.